

**Figure 1**

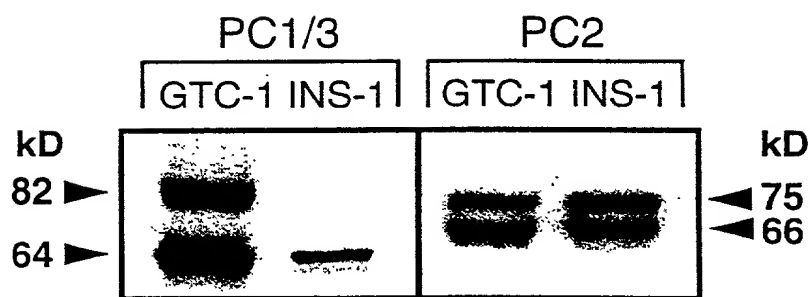
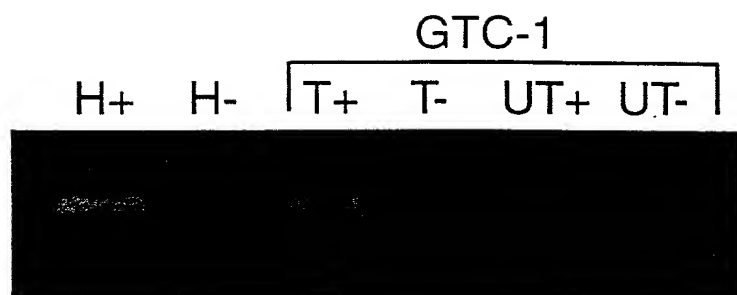
STC-1

GTC-1

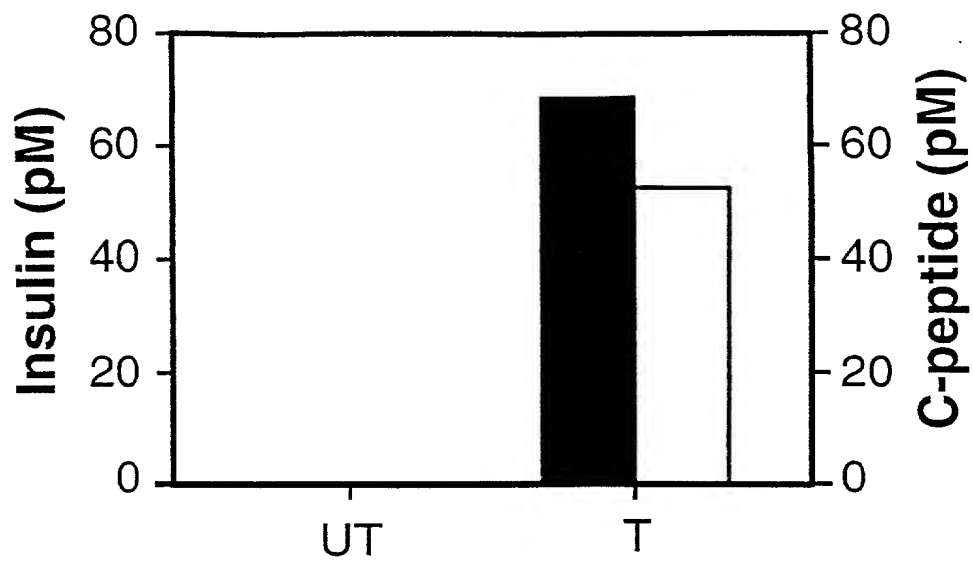


**Figure 2**

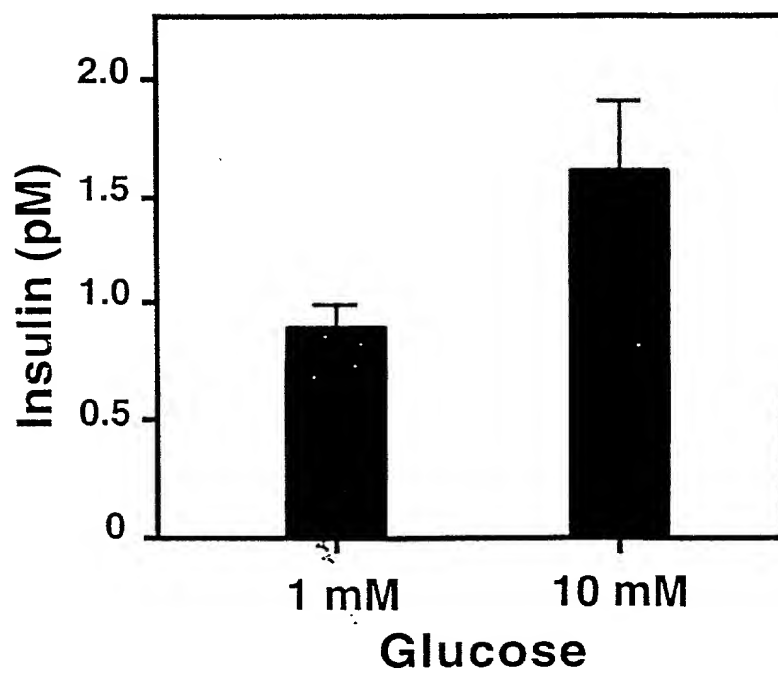




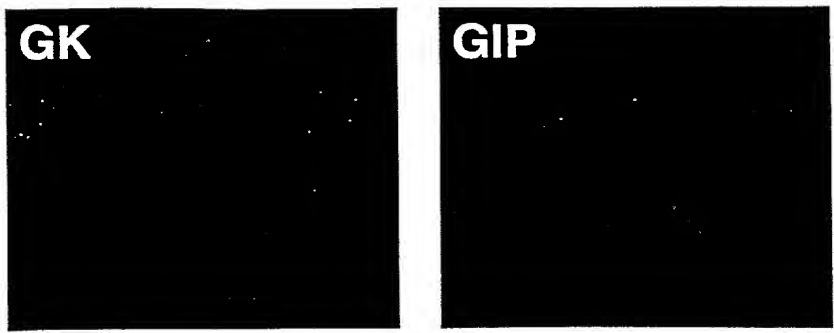
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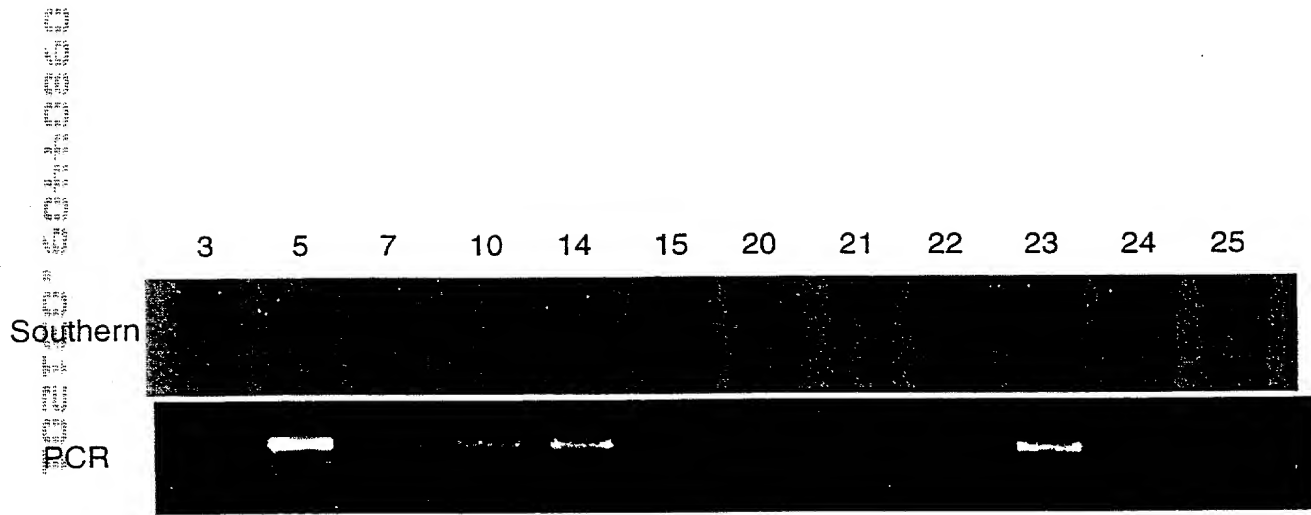
**Figure 5**



**Figure 6**



**Figure 7**



**Figure 8**

supplied by the manufacturer. The DNA was extracted from the tissue samples using the QIAzol lysis reagent (Qiagen) and the RNeasy spin columns (Qiagen) according to the manufacturer's instructions. The DNA was quantified using a spectrophotometer and stored at -20°C until use.

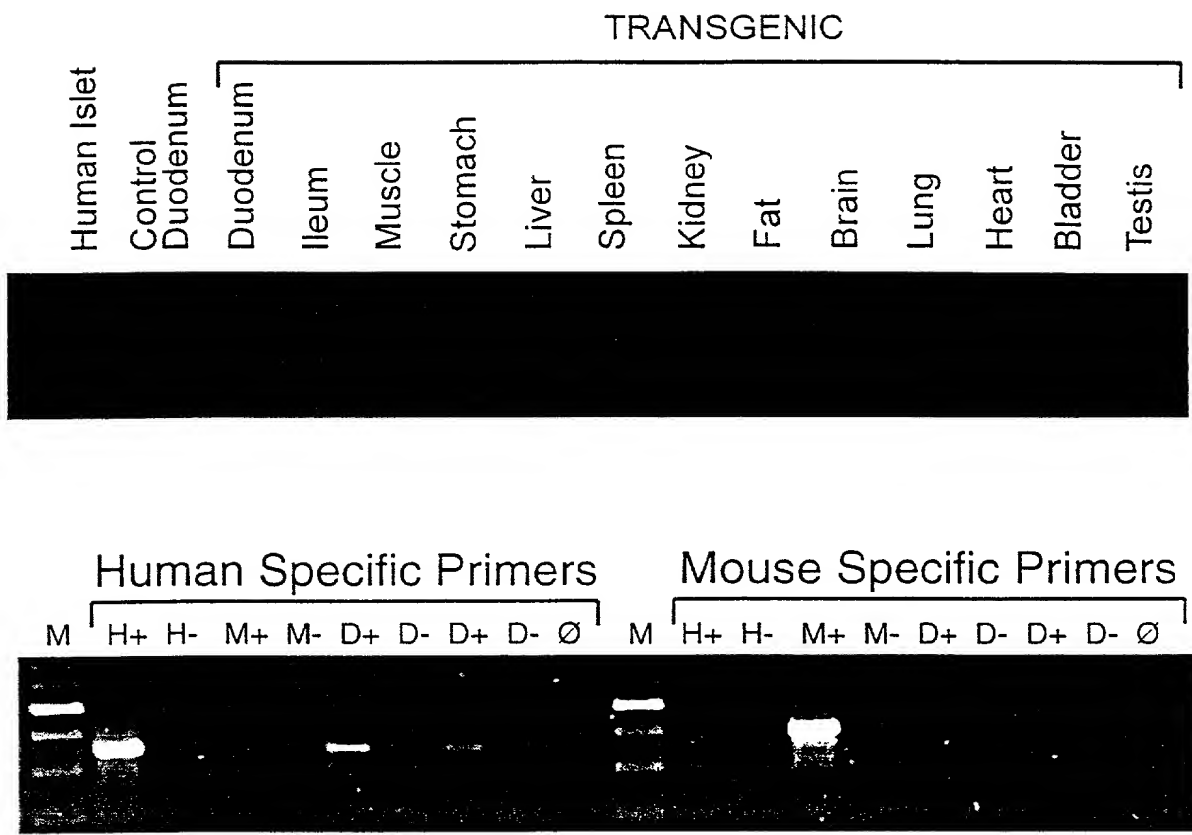


Figure 9

100x magnification  
H&E stain  
Micrograph showing  
the presence of  
insulinoma cells  
in the islets of  
Langerhans.

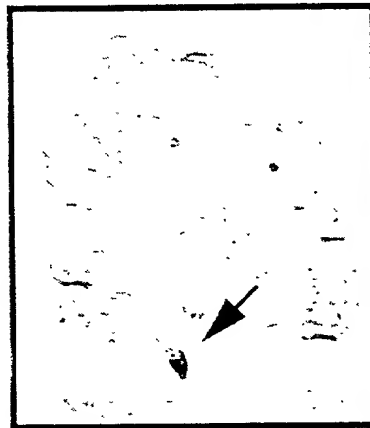
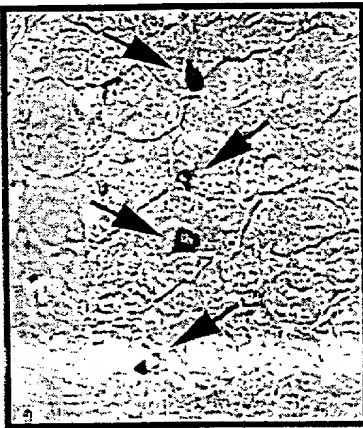
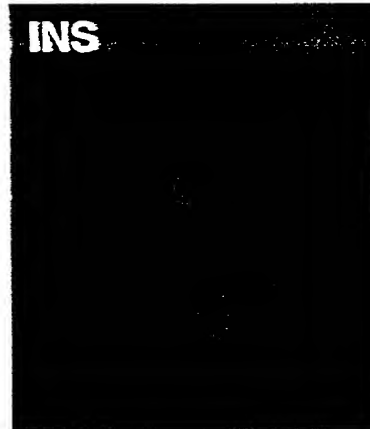
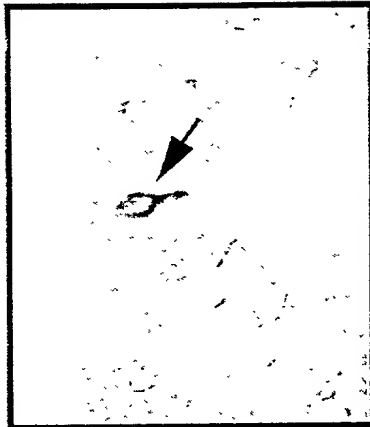
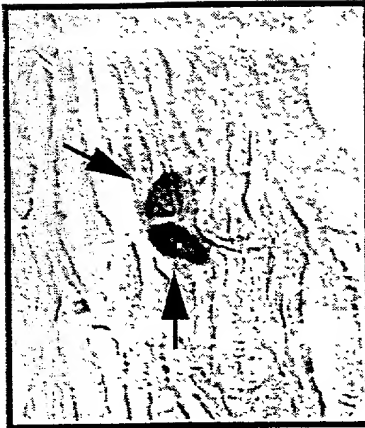
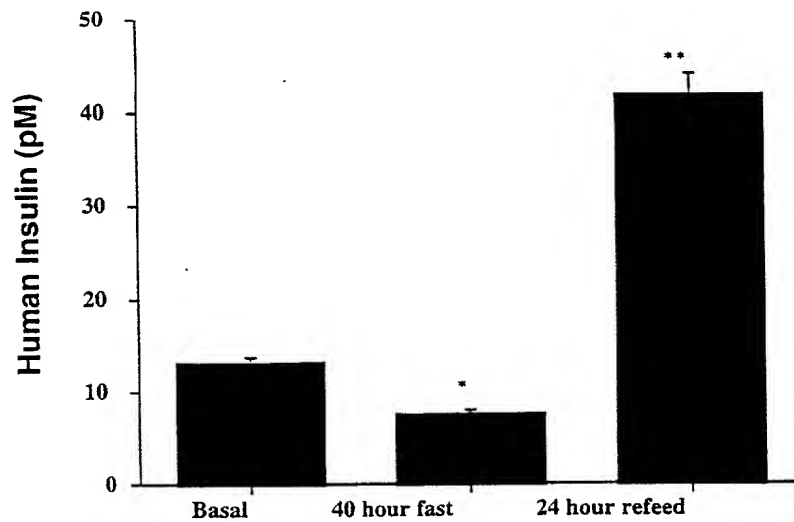
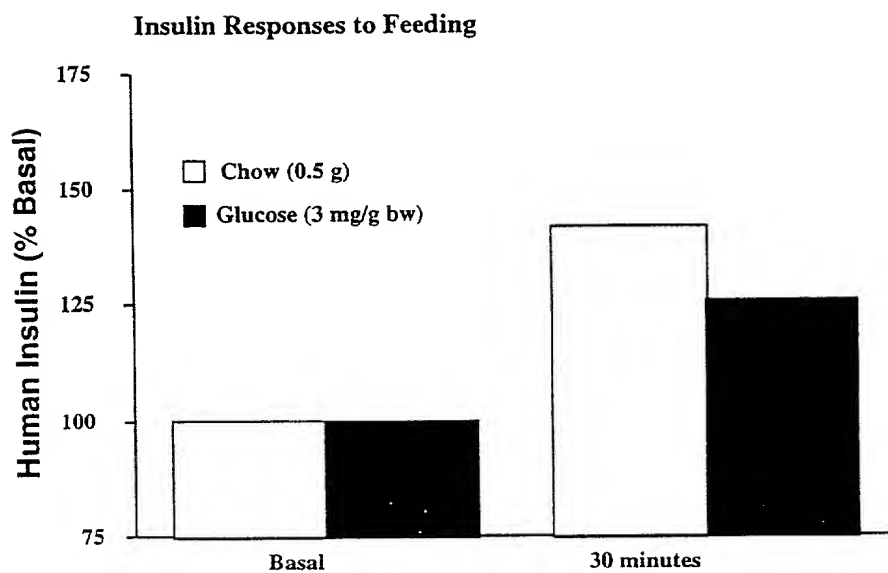


Figure 10



**Figure 11A**



**Figure 11B**



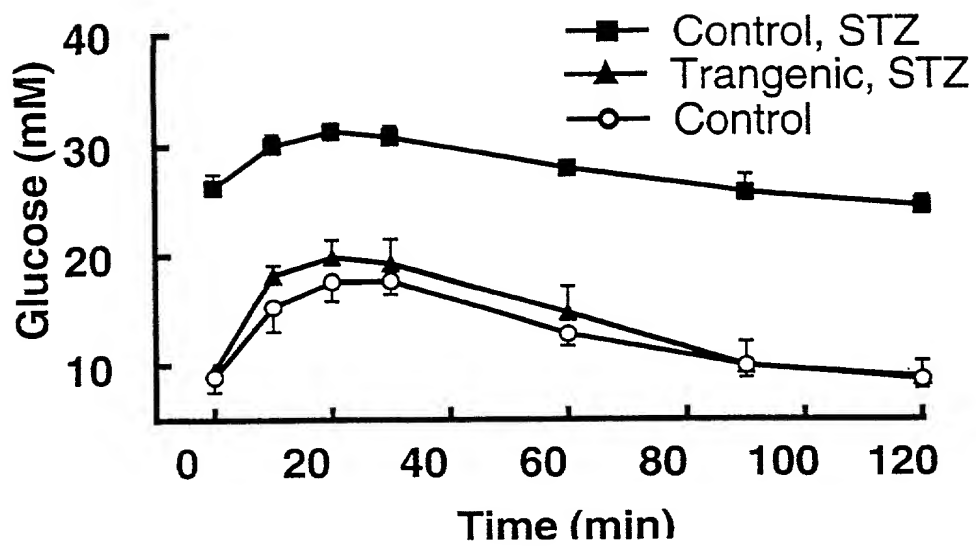


Figure 12

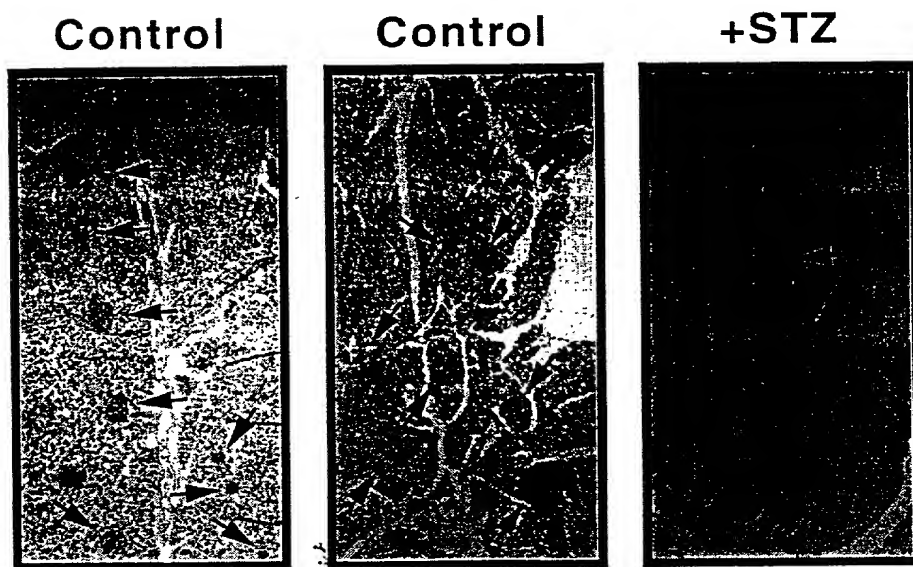


Figure 13

## GIP Promoter

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 ccgaaccg gagttcagtc cctagcactg cacaatctca gtccttatga agtagaggga  
 agatcagagg ttaaggaca acatcaatt gagaccagcc tgggctactt accaaagaaa  
 gaaagagaga aataaataaa tagatagata aataaataaa taagtaaata aatatcttat  
 ggctggagag ttggttcagt gtttaagagc acttattgtg gggttgggga ttagctcag  
 tggtagagcg ttgcctagg aagctcaagg ccttgggttc ggtcccagc tccggaaca  
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 taaagatata tatatataat atatatacat ataataata tatgatata atatataat atatctttgt  
 ggaggaagct atacctttct tcttgagcc tccaacacat aaatgtgcc tgtcatcca  
 ttcatttgc ccaagtgagg aaacctgtg actataaact ctaagttcct agtcactagg  
 aactctcaag acacctacct caggcagcat cactccgga gtgccacat tatcagttaa  
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 cctttgtacc cacagaatcc aacagggaagt aggggggaaga acagccggcc ctgtgccag  
 aaaaaagag gggagggaga aggggggtgt cagcctacca ccgggcaggt ccagataac  
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 attaggtgta taatgggggt cactgggcag gaccagtggg ctgagcttc aaagataaga  
 ggtttcagg ttaatcaga cctgtgtgtg tgtgatata aggaagctaa cacagggtct  
 tgaagcaaga tcttgag

Mouse chromogranin A (Chga) gene, promoter region.  
 ACCESSION L31361

1 ccgaattac ccactacgtt ggaattctat aagggttggg ttgtctgtt tgtttacagc  
 61 tgcgtctttg gcaccagca cagctgagt gttctaagcc cagctgatg cttaacacat  
 121 ggtgttgaa tgaatacac cgaagccggt tctcattag gggcatgagt aggcagaggt  
 181 gtgggcagga agcaggaaag agcggaaaca ggtcgggaca gaaaggagg gctctgaagg  
 241 atgccagta gtgcaaaact gtcacccaga taccaggttc actgtggccc taggccaggc  
 301 tgcacggggc tccccatgtg gctgtcccag ggtgagagca gaactgcggt gggcggggca  
 361 gaaggaaacc aaccaggaag cagggttgca ccaaattat ccaggtttta agtacatta  
 421 agagacaagg ctgggctgtt gaagtcaga ggtgtccctg ggtgtctgga ctaggactga  
 481 ccacttctgt tttagtttaa tggtgagaac tgcctcacac tgcactgc cttacttgc  
 541 ccttgagagc tgtgagccta ggaccaccc atgtgtgggt tggacctta gtcacacact  
 601 gaacgtgtgt gaagccactg gttgtcagag cagggtcttc ggcactgagg aagcagtgc  
 661 cactatcccc tatcaataa caattaaata cacacagaat gogaggcaca caactgagt  
 721 tcaggagagg cctcgtcag gcaagggtt caagaggctt ctgtgggacc cgctggatgt  
 781 tccaggaggt tcttaagat gggcgtgcct ccagccaagt gaaatcaaga gaaaagtacg  
 841 cgaagtatag gaaaactcag cagtctggag aggtaaatag gggaggaatc cagggtcag  
 901 agacaggagt gacttgccca cggacgcaca gcaagtggc aggtggagt cagctgtgcc  
 961 accttctgaa gccgggtacc ctttacagcc accagataca agcgggatag agacagctga  
 1021 tggagaagct ggaggtggg ggcgggacc cgaaggtggg gaaagggcgc gggggggcgg  
 1081 tctatgacg taatttctg ggtgtgtgcg cgcgtgtgcg tgcgtgtgcg tgtatataa  
 1141 agccggcata gcattgtgc tctgtccgc gccaccgcca ccatcaccgc tgttaccacc  
 1201 accgctactg cagtgttccc gctgtgcag agctttgta gccagactac agaccactc  
 1261 ccgccatcct cctgcagcag ctcgtccact cttccgcac cgtccggctc gctatgcgc

//

Figure 14

Mus musculus secretogranin II (Scg2) gene, promoter and exon 1, complete sequence.  
 ACCESSION AF037451

```

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61  gcaccactt ctgtgcttgc caggcactgg catagcctca caagagacag ctatcagg
121  gtctgtcag caaatcttt ctggcatatg caatagtgtc tgggtttggt ggtgttatat
181  gggctggatc cccgggtggg gcagtccttg gatggcttt cctccgtct tagctccaaa
241  cttgtctct gtaactcctt ccattgggtac ttgtttccc attctaagaa ggagcaaaagt
301  atccacactt ccttctctt ccttctctt gagttttgca aatgccacaa aacttcaaa
361  gccttctgaa tagccttctc tttagtctt tccaatgat attaaataa tctatcttc
421  atccccattg attaaagcct tctaaagcc agaaaactat atcattttt ttctttccc
481  agtagttcac aaactatctg gcacctcata agcatcataa ctcagtgggt gggtagataa
541  aattggaatg tgattgttca gtcagcagag acttttagag gacctatac aacaagatc
601  tctcagtctc cagaaatata tttagtata tacagggtta gaggactcac atcttaata
661  aaataaagt aaataattag acctgtataa attattaagg tacctaatac agttccacgg
721  caaagtacag ccattgttat gaattataa tccaagaagc ggtgggttaa ctctgacatt
781  gttccttggg tgggtctcat tcattgaagt tagtcacctc aacttactca accaaaacct
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1381  gagatgtcct tgcaattagt catgtctatc tgacagattt ctcccttct aagggaattt
1441  gtgctgaaca ttttatttcg agcctcagag ataaaagaag ggggaagaag ctgtagtttt
1501  tgcacataa gacaggtggc gtaagcatgc aacgctttaa aaaaatatct aaagtattg
1561  tttctctcg gatttttga aaaagctcgc ctgcgtggg gttttaggct gagccgggta
1621  cgtcagcgtg gaatgcggag tcaggcgccc aggcctctta taagccgagg agctgtccgg
1681  tgctgaaacg gcccagccc tctcagcg gcagagagga gcatgcttg agcctccac
1741  ataataaag acagaggtaa
  
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//

Mus musculus glucokinase gene, 5' flanking region.  
 ACCESSION U93275

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1  agctttaggt gtgtgaatat ctactttggt gctagggcct tggtcatact aagtaagttt
61  ccccttactt ggggtgtacc agtttaccct ggactgtcta agcaacaaga aggatagaca
121  tggcctacca cagatttcat gtctgccact ggctatgtca gaacatgtag gagcttttgg
181  aatcagtgaa acaggtattt tcagactgcc ttccctgcgt ggggctttcc cgaagccata
241  ttttcttag agtcagcctt tcccagctga ggacaagctg tactggacag atgccagcca
301  ctgaaactgg gaatacatgg tcatttaggc agctggctta tctatccat ggtacttgat
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421  caggcaggag atcctgcagg caatcctcct gctccacagc ctgcatggac ttccctcagc
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601  ttcatcctcc taataaatat tgccaagtag ggtagattct atacgaaagc tcttaacca
661  ttgtattagc aaatcatgta ggtgctaata atgaatactg gatgcagtca gtacagggat
  
```

Figure 15

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 781 aaatgttgac gttatgacgt gtggaactt ggtattgaag atgtggactc gaaactttgt  
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 1261 attaacagca ccagtagacc tgcttacacg gaagaaagca atctcatagg ccctcaccac  
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 1441 taatactagc gcaactgaac agattgtagc tgtgtgtgtg tgtgtaata taacaaagaa  
 1501 gaaaaggccc catgttagag agggagcaag gtggcatgg aggtatggaa ggagttggaa  
 1561 ggaggggtga gaaggggaaa gtgatgtaat tatcttttaa ttataaaaa aataaaaaat  
 1621 gggctgtgta gatggctcag tgggtaagag caccgcactg ctcttcgga aggtctggag  
 1681 ttcaaatccc agcaaccaca tgggtgctca caaccatccg taacgagatc tggcgccctc  
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 1801 aaaaaaata aaaaataaaa tattagaata aaatgtagag gaatatttt aatttaacaa  
 1861 ctgggtgtg gcaaaagctt tcttaacaa aaacttaac cctcagataa gaaaagacta  
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 1981 cttagcaga acttgagttg taactgttg gaaacacaa caccctggc aaacaaaaga  
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 2461 aacaaaaaaa ccccataat tcaacaaca gatatgtcct ggtctgaggc ttccaggcat  
 2521 agaataagaa acacacagag tgtggagcca gtgcggttca ggtccgcat tccagttcag  
 2581 gcttcagacc aagagaagg gaaaagaaga gacaagcaac aag

H.sapiens adenosine deaminase (ADA) gene 5' flanking region and exon 1 (and joined CDS).  
 ACCESSION X02189

1 tccaggaaat gcgcatcca ggccggcggg cggggcgggg gctccggcga gagggcgggc  
 61 cccgggaacg gcggcgggcg gggcgggagg cggggcccg cccgttaaga agagcgtggc  
 121 cggccgcggc caccgctggc ccaggggaaa gccgagcggc caccgagccg gcagagaccc  
 181 accgagcggc ggaggaggga gcgacgccgg ggcgcacgag ggcacc

Homo sapiens mRNA for pre-proinsulin.  
 ACCESSION X70508

MALWMRLPLALLALWGPDPAAAFVNQHLGSHLVEALYLVCGERGFFYTPKTRREA  
 EDLQVGQVELGGGPGAGSLQPLALEGSLQKRGIVEQCCTSICSLYQLENYCN"

1 gctgcatcag aagaggccat caagcacatc actgtccttc tgccatggcc ctgtggatgc

Figure 16

61 gcctectgcc cctgtggcg ctgctggccc tctggggacc tgaccagcc gcagccttg  
 121 tgaaccaaca cctgtggcg tcacacctgg tggaagctct ctacctagtg tgcggggaac  
 181 gaggtctctt ctacacaccc aagaccgcc gggaggcaga ggacctgcag gtggggcagg  
 241 tggagctggg cggggggcct ggtgcaggca gcctgcagcc cttggccctg gaggggtccc  
 301 tgcagaagcg tggcattgtg gaacaatgt gtaccagcat ctgctccctc taccagctgg  
 361 agaactactg caactagacg cagcccgag gcagccccc acccgccgcc tcctgcaccg  
 421 agagagatgg aataaagccc tgaaccagc

Homo sapiens leptin (LEP), mRNA.  
 ACCESSION XM\_004625

"MHWGTLGFLWLWPYLFYVQAVPIQKVQDDTKLIKTTIVTRINDISHTQSVSSKOKVTG  
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 WASGLETLDSLGGVLEASGYSTEVVALSRLQGSLLQDMLWQLDLSPGC"

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 121 caagatgaca ccaaaacct catcaagaca attgtacca ggatcaatga cattcacac  
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 1861 gttctgtct gattggctca ccaagcaag gccaaaatta ccaaaaatct tgggggggtt  
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 1981 taggcgagtg ccaggactcc ccaggccagg ccaccaggat ggccctccc actggaggtc  
 2041 acattcagga agatgaagaa ggaggtttgg ggtctgccac catcctgctg ctgtgtttt

Figure 17

2101 gctatcacac agtgggtggt ggatctgtcc aaggaaactt gaatcaaagc agttaacttt  
 2161 aagactgagc acctgcttca tgctcagccc tgactgggtgc tataaggctgg agaagctcac  
 2221 ccaataaaca ttaagattga ggcttgcctt cagggatctt gcattcccag tggtaaacc  
 2281 gcactcacc atgtgccaa gtgggggtatt taccacagca gctgaacagc caaatgcatg  
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 3121 tggggggatc acaaggtcac tagatggcga gcatcctggc caacatgggtg aaaccccgtc  
 3181 tctactaaaa acacaaaagt tagctgagcg tgggtggcgg cgctgtagt cccagccact  
 3241 cgggaggctg agacaggaga atcgctttaa cctgggaggc ggagagtaca gtgagccaag  
 3301 atcgcgccac tgcactccgg cctgatgaca gagegagatt ccgtctttaa aaaaaaaaaa  
 3361 aaaaagtttg ttttaaaaa aatctaata aaataactt gccccctg

Homo sapiens cholecystokinin (CCK), mRNA.  
 ACCESSION XM\_003225

"GSAAGLLRLETPSQLRPNPKAMNSGVCLCVLMAVLAAGALTQPVPPADPAGSGLQRAE  
 EAPRRQLRVSQRTDGESRAHLGALLARYIQQARKAPSGRMSIVKNLQNLDPISHRISDRD  
 YMGWMDFGRRSAEEYEYPS"

1 ggctcagctg ccgggctgct ccggttgaa acgccaagcc agctgcgtcc taatccaaa  
 61 gccatgaaca gggcggtgtg cctgtgctg ctgatggcgg tactggcggc tggcgccctg  
 121 acgcagccgg tgctctccgc agatcccgcg ggctccgggc tgcagcgggc agaggaggcg  
 181 ccccgtaggc agctgagggt atgcagaga acggatggcg agtcccgagc gcacctgggc  
 241 gccctgctgg caagatacat ccagcaggcc cgaaagctc cttctggacg aatgtccatc  
 301 gttagaacc tgcagaacct ggacccagc cacaggataa gtgaccggga ctacatgggc  
 361 tggatggatt ttggccgtcg cagtgcggag gagtatgagt acccctccta gaggaccag  
 421 ccgccatcag cccaacggga agcaacctc caaccagag gaggcagaat aagaaaaca  
 481 tcacactcat aatcattgt ctgtggagt tgacattgta tgtatctatt tattaagttc  
 541 tcaatgtgaa aaatgtgtc gtaagattgt ccagtgaac cacacacctc accagaattg  
 601 tgcaaatgga agacaaaatg tttttcat ctgtgactcc tggctgaaa atgtgttat  
 661 gctattaaag tgattcatt ctgcc

CCK Promoter (Rat)  
 ACCESSION S70690

1 aattcgcgcg ctaagccgca ttattcacgt ttccagacat gtcacaaata cagctaattc

Figure 18

61 ctacaacctg agctgtgtca tggggggggg gggaatcacc cacagcattt aatctgtctc  
 121 tgttttaaac acgttgcttc taagtaaaga gaccgctaga gccacaacca ggaacctaac  
 181 tgctgtggc atcacttgcc tttcatagt ctcctcagc cggaaccccc ccacgtggg  
 241 tgccttctct atttagaaag agtttctaag ctttctct tcacctaga ctggcaaggt  
 301 tgagggtagg ctgagggttg caagactgtg agaaaaggga gccctctct tcttctgt  
 361 cggtagtat ctacccaag atctcacca ccagtgga tccgtaact ctaggagaaa  
 421 ggaagaactc tagaggacgg gaagatcatt gcaagctccc ctatgtgtg gagcccagcc  
 481 cgctccactc agccagccag agcttgaggg tgcctgagac actctctggc gccacttcgc  
 541 gacccaaatc atcggtagat gtaggctggt gagaagtcac ctgggaaga aatggaacc  
 601 tttcccaa aggcttccg cacaaaaggc aagagctgca ccaggtatc taaaattctg  
 661 taagacgaga atccacgagg ccaactgtga ttgagttctg aaaaattgag agccctactc  
 721 cctctctca ctgtgggag cccactcagg tctgaagtc tccagagaa catgccagaa  
 781 ttacattgc tgacacctag tctgtaggg tccccgggt tctggaagg attgatccc  
 841 tcaagctca ctaaacagt gtcagcttct ccattccaga caactctct cttctccc  
 901 ggagtagggg tggcaccctc cctgaagagg actcagcaga ggcaccgaac agggtagggg  
 961 ggaaagctgt ttatataag aggaggactc atacaaagta cccgcctgg gaggggctat  
 1021 cctcattcac tgggccgtt ccttctccc ggggggccac ttcgatcgtt ggtctctcca  
 1081 gtggctgcct ctgagcacgt gtcctgccgg actgcgtcag cactgggtaa acagatgact  
 1141 ggctgcgtac cggcgggggc tatttaagag gagtcgcct gccgcctgcc ctcaacttag  
 1201 ctggacagca gccgttgaa accgcaagc cagctgactc cgcacccgaa ggtaagtggc  
 1261 tggcagatcc aagaatcatg agtgtgaaga actggcctgt agcttgcac ctattgccgt  
 1321 ttacttttc cattttctg gcctccctc actgacagc tg

Human messenger RNA for growth hormone (presomatotropin).  
 ACCESSION V00519

"MATGSRTSLLLAFLGLCLPWLQEGSAFPTIPLSRPFDNAMLRAHRLHQLAFDITYQEFEE  
 AYIPKEQKYSFLQNPQTSLCFSESIPSPNREETQQKSNLELLRISLLLIQSWLEPVQFLRSV  
 FANSLVYGASDSNVYDLLKDLEEGIQTLMGRLDGSPTGQIFKQTYSKFDTNSHND  
 DALLKNYGLLYCFRKMDMKVETFLRIVQCRSVEGSCGF"

1 cgaaccactc aggtcctgt ggacagctca cctagctgca atggctacag gctccgggac  
 61 gtccctgctc ctggctttt gcctgctctg cctgccctgg cttaagagg gcagtgcctt  
 121 cccaaccatt ccttatcca ggcctttga caacgctatg ctcgcgccc atcgtctgca  
 181 ccagctggcc ttgacacct accaggagt tgaagaagcc tatatccaa aggaacagaa  
 241 gtattcattc ctgcagaacc cccagacctc cctctgttc tcagagtcta ttccgacacc  
 301 ctccaacagg gaggaacac aacagaaac caacctagag ctgctccgca tctccctgct  
 361 gctcatccag tcgtggctgg agccctgca gttcctcagg agtgtcttcg ccaacagcct  
 421 ggtgtacggc gcctctgaca gcaacgtcta tgacctcta aaggacctag aggaaggcat  
 481 ccaaacgctg atggggaggc tgaagatgg cagccccgg actgggcaga tctcaagca  
 541 gacctacagc aagttcgaca caactcaca caacgatgac gcactactca agaactacgg  
 601 gctgctctac tgcttcagga aggacatgga caaggtcgag acattctgc gcacgtgca  
 661 gtgccgtct gtggagggca gctgtggct ctactgccc gggtggcatc cctgtgacc  
 721 cccccagt cctctctg cctggaagt tgccactcca gtgccacca gcctgtct  
 781 aataaaatta agttgcatc

//

Figure 19

(-1894)

5' \_GAGTGGCGACAGGCTGCTGCTAGCAGGCTCTACACTGAGCTAACCCACCCATAT  
ATATACATAGTTACTATTAGCTTTATTTATATTTTTAAGATTATCATTATATATATAG  
TACACTGTAGTGTCTAGATACACAGAAGAGGCATCGGTCTCTTACAGAGAGCCACC  
ATGTGGTTGCTGGGGATTGAACTCATACCTCTGGCAGAGCAGTCGGTGCTCTTAACG  
CTGAGCCATCTCTCCAGCGCCCCCAAAGCCCAGCTTTTAAAAATATTTTAAAATTTCT  
TTCTACAGATTGTTTTATGTATATGAGTGTTTTGTGTGTATGCGTTGATGTGTGTACT  
GTGTGCATGGCACATGCCAGTGGGCCACAGACAGAGGGGACATGAGATTCCCCTGAA  
ACTTGGAGTTACAGATGGCTGTGGGCTGCCATGTGAGTGAGCGCCTTTGGAACCAAA  
CCTGGGTCCTGCACAAAAGCAACAAGCACTCTTAATCGTTGAGCCACCTCTCCAACC  
CCTTGATATTTCTTTTCGTTGGTGCATTAATAATTGATAAACAGAGGGTTTTCTTTATT  
TAAAGATTTATTTATTTTATGTGAGTACACTGTTGCTCTCTTCAGACACATAGAAGAG  
GGCATTGCTGGATTCTGCTACAGATGGTTGTGAGCCACCATGTGGTTGCTGGGAGTT  
AAACTCAGGACCTCTGGAAGAGCAGTCAGTGCTCTTAACCACTGAGCCATCTCTCCA  
GTCCCTTCCTCAACCTTCTGAGAACAGGCAAACCTCCACCATGATTGGCTTATAAATC  
GTTATATGGACCTACTAAGGATGTAACAACCTGGGAGCATGCTTACCTAGCATGTCCG  
AAACCCGGAGTTCAGTCCCTAGCACTGCACAATCTCAGTCCTTATGAAGTAGAGGGA  
AGATCAGAGGTTCAAGGACAACATCAATTTGAGACCAGCCTGGGCTACTTACCAAA  
GAAAGAAAGAGAGAAATAAATAAATAGATAGATAAATAAATAAATAAGTAAATAA  
ATATCTTATGGCTGGAGAGTTGGTTCAGTGTTTAAGAGCACTTATTGTGGGGTTGGG  
GATTTATCTCAGTGGTAGAGCGTTTGCCTAGGAAGCTCAAGGCCCTGGGTTCCGTCC  
CCAGCTCCGGAAACAAAACAAAACAAAACAAAACAAAACAAAACAAAACAAAAC  
CTGTCTGGAAAACACCTAAATAAAGATATATATATATAATATATATACATATAATAT  
ATATATGATATATATATATATATATATCTTTGTGGAGGAAGCTATACCTTTCTTTCTT  
GAGCCTCCAACACATAAATGTGCCCTGTCATCCCATTTCATATTGCCCAAGTGGGAA  
ACCATGTGACTATAAACTCTAAGTTCCTAGTCACTAGGAACCTCTCAAGACACCTACC  
TCAGGCAGCATCACTTCCGGAGTGCCACCATTATCAGTTAACATCCACATCTGGGAT  
TCAGATCCCAGATCCCTTCTGTTCCCTCAGAAGTCACCTACAGCTTTGTGGGGGTGC  
CCCTTCCCTCAGAGAGTGCCACCCGAGTTGACCCTCACCAAGGCAACCCTTTGTACC  
CACAGAATCCAACAGGAAGTAGGGGGAAGAACAGCCGGCCCTGTGCCAGAAAAAA  
AGAGGGGAGGGAGAAGGGGGTGCTCAGCCTACCACCGGGCAGGTCCCAGATAACA  
CTGCAGATACCCAAATGTTAATCACCCATTAGCACAGGCCCAGAGCAAAGGGGAAA  
GTGATTAGGTGTATAATGGGGTTCCTGGGCAGGAGCAGTGGGCTTGAGCTTCAA  
GATAAGAGGTTTTTCAGGTTAATCAGCACCCCTGTGGTGTGTGGATATAAGGAAGCTAA  
CACAGGGTCTTGAAGCAAGATC\_3' (-1)